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The Marshall Islands Radioassay Quality Assurance Program An Overview

T. F. Hamilton, W. L. Robison, S. R. Kehl, A. C. Stoker, and C. L. Conrado
Lawrence Livermore National Laboratory, P.O. Box 808, L-286
Livermore, CA, 94551-0808

Fallout from atmospheric nuclear weapons tests on Bikini and Enewetak Atolls contaminated several atolls in the Northern Marshall Islands. The Lawrence Livermore National Laboratory (LLNL) with funding support from the Department of Energy (DOE) has been evaluating radiological conditions at the atolls since 1974. We provide DOE and the US Congress with data and assessments, and help atoll communities and their representative councils make informed decisions about resettlement options. We have also implemented an extensive research program to develop and evaluate remedial measures to reduce the prospective dose. Program performance and data quality/integrity are bound by stringent quality assurance objectives and measures; all operational program actions are adequately controlled to provide uniform acceptable measurements.

The Marshall Islands Program maintains and operates facilities for sample processing, radiometric analysis, and database management. Based on extensive knowledge of important exposure pathways and associated radionuclides at the atolls, our Radioassay Quality Assurance Program (RADQAP) is focused on collection and processing of terrestrial food crops, and analysis of ^{137}Cs, ^{90}Sr, and the transuranic elements. Up to 5,000 samples of vegetation, soil, water, aerosols, and/or biota are processed annually. Custom designed computer programs and bar coding are used for all data entry, and help facilitate sample tracking and integrity control. Our gamma spectrometry facility and radioanalytical laboratory run high profile QA/QC programs, and participate in national and international intercomparison exercises on a regular basis.

Several new innovative radioanalytical methods have been developed to improve on the accuracy and precision of our analytical measurements. We have also developed several large national databases to help with dose/risk assessments , and respond to the data and information needs for our customers. In general, program performance and data quality are evaluated to both external and internal assessments, and peer review. We believe that our RADQAP program is a good model for other radioassay laboratories involved in field characterization and monitoring.

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